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Lending Club Case Study

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Background - Lending Club Case Study

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- Lending Club is the largest peer-to-peer (P2P) online lending platform where lenders provide loans to borrowers for various purposes and receive returns from the borrowers.
- Lender can give a loan for various purposes like small business, credit card, educational, medical emergencies etc.
- The lender can issued a loan to borrowers for maximum duration either 3 or 5 years.

- **Objectives:**

To identify the risky loan applicants, then such loans can be reduced thereby cutting down the amount of credit loss.

Creating visualizations from the given dataset helps to understand the insights and make informed decisions on whether to approve or reject new borrowers.

APPROACH

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Data Understanding	Data cleaning	Data Manipulation	Univariate Analysis	Segmented univariate Analysis	Bivariate Analysis	Recommendations
Reviewing the data dictionary to understand each column’s purpose and its specific domain uses.	Removing unnecessary columns. Data Imputation Outliner Removal	Data typecasting & Derived columns	Analyzing each column and plotting distribution	Analyzing data with categorical columns	Analyzing the behaviour of two columns charge off proportion with each column.	Evaluating all plots and providing recommendations to minimize business losses by identifying key columns that are most indicative of loan defaults

Count wise interest rate Bracket

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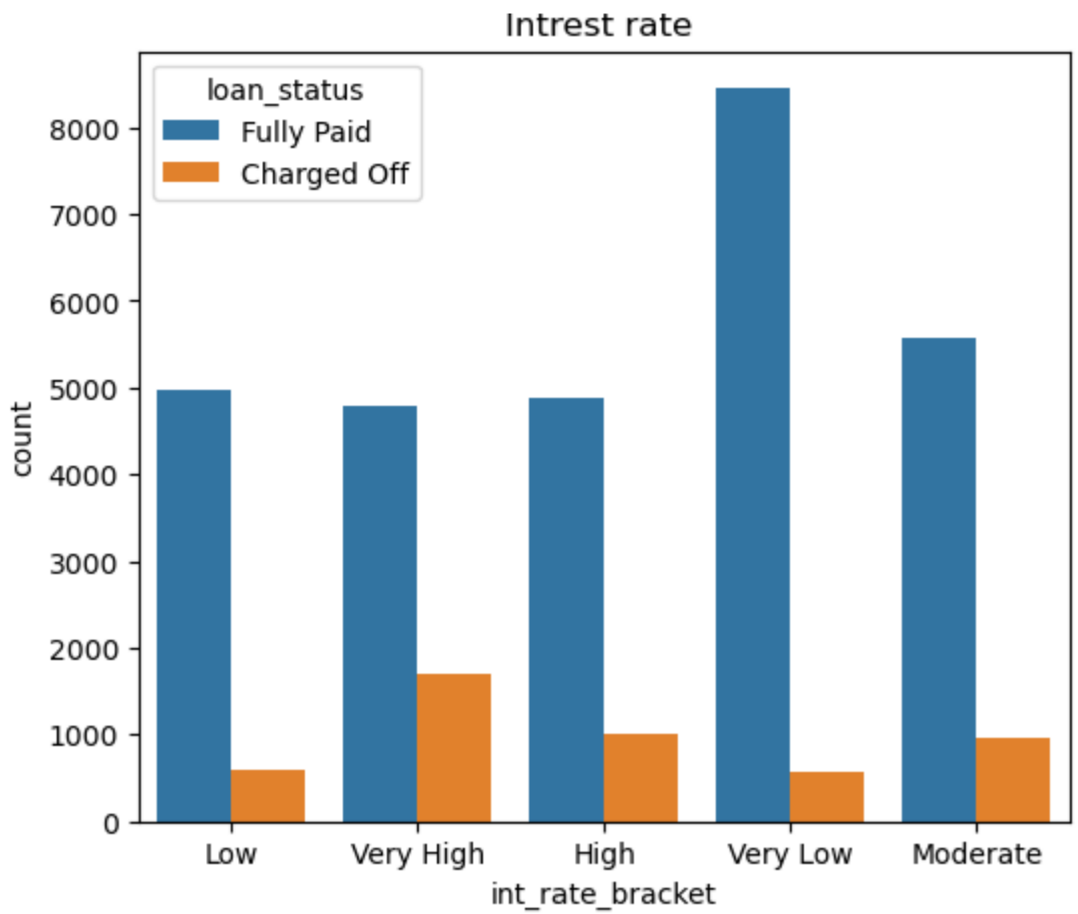
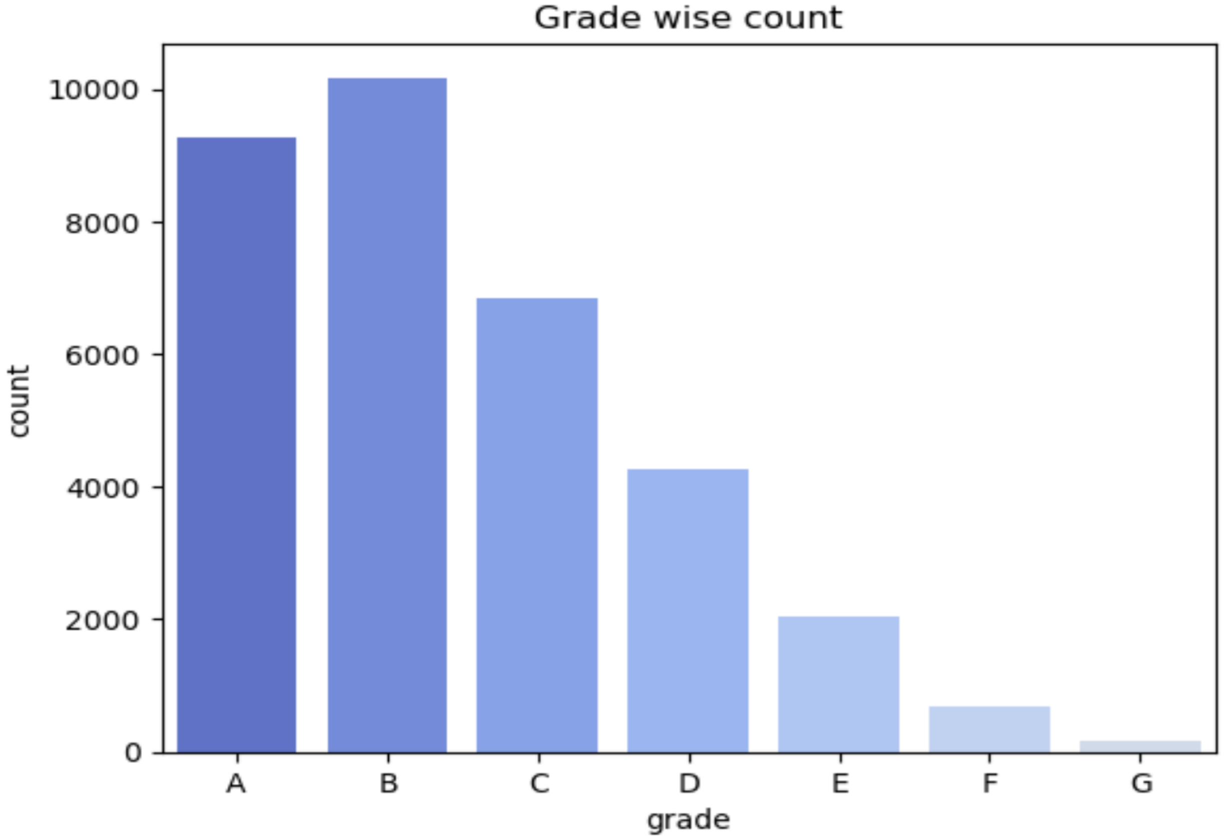
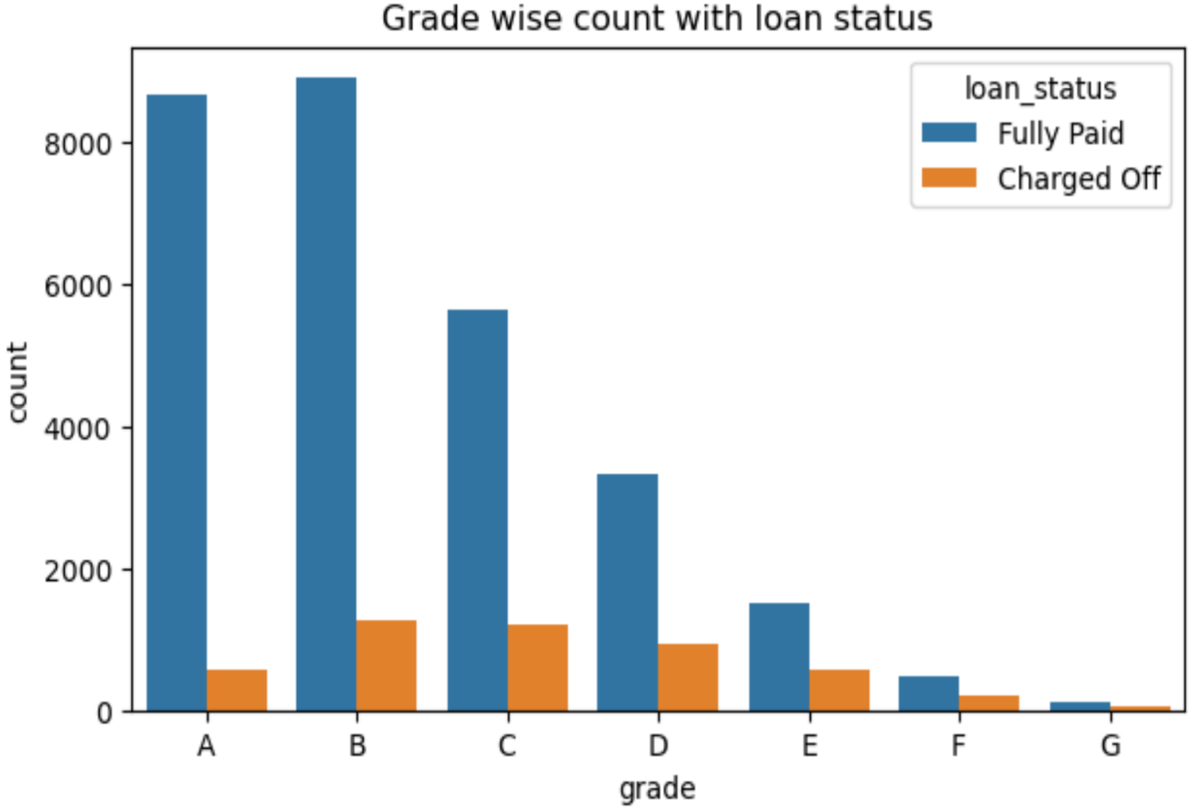


- Loans with higher interest rate are more likely to charge doff.
- The highest interest rate is 24%, with the majority of rates falling between 9% and 14%
- Issuing loans at lesser interest rate will decrease the defaulters

Grade wise count





- 1st Plot, Grade (A,B,C) applied more loans as comparing to other grades.
- Grades A, B, and C have fully paid their loans, and there seem to be fewer defaulters compared to other grade categories in terms of loan status

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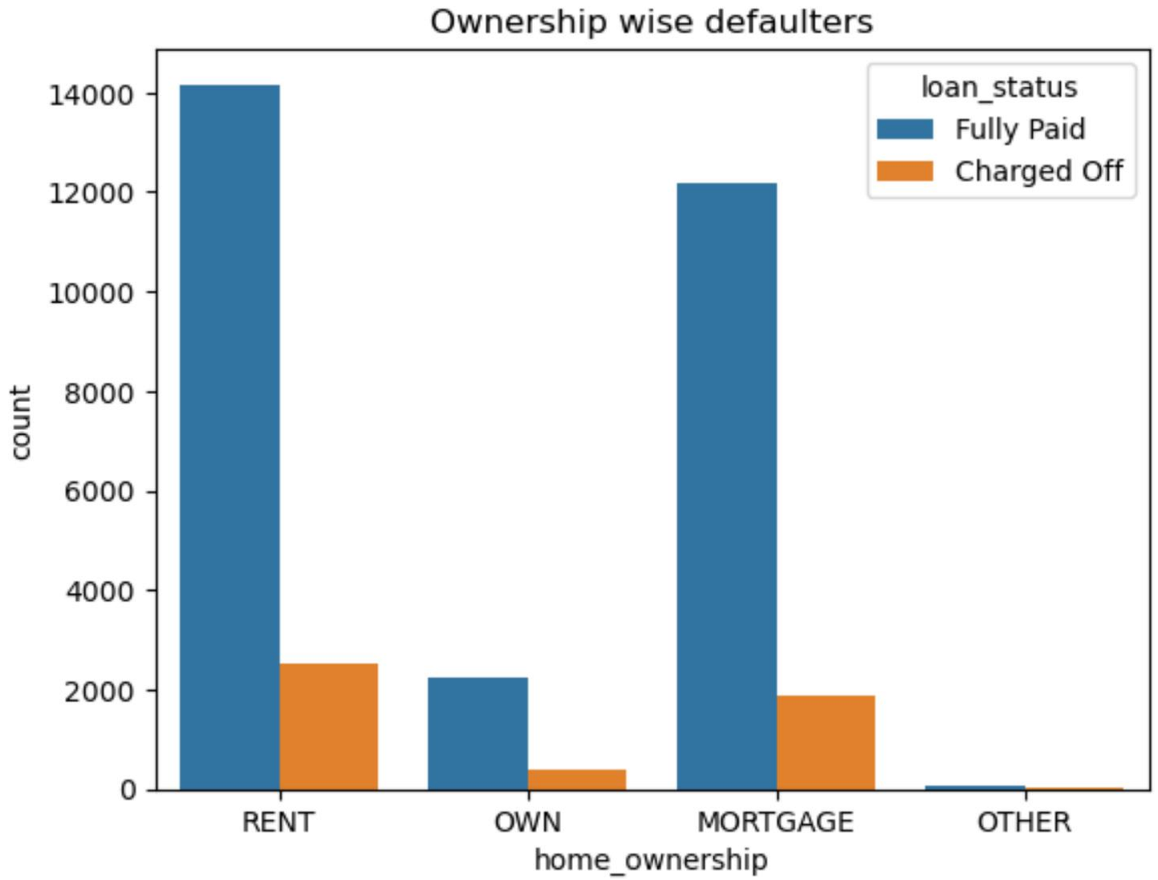
Home ownership wise count



- Most of the borrowers having home ownership as rent or mortgages.
- Rented borrowers has reached the count till 14000 with fully paid status.

Quarter wise count

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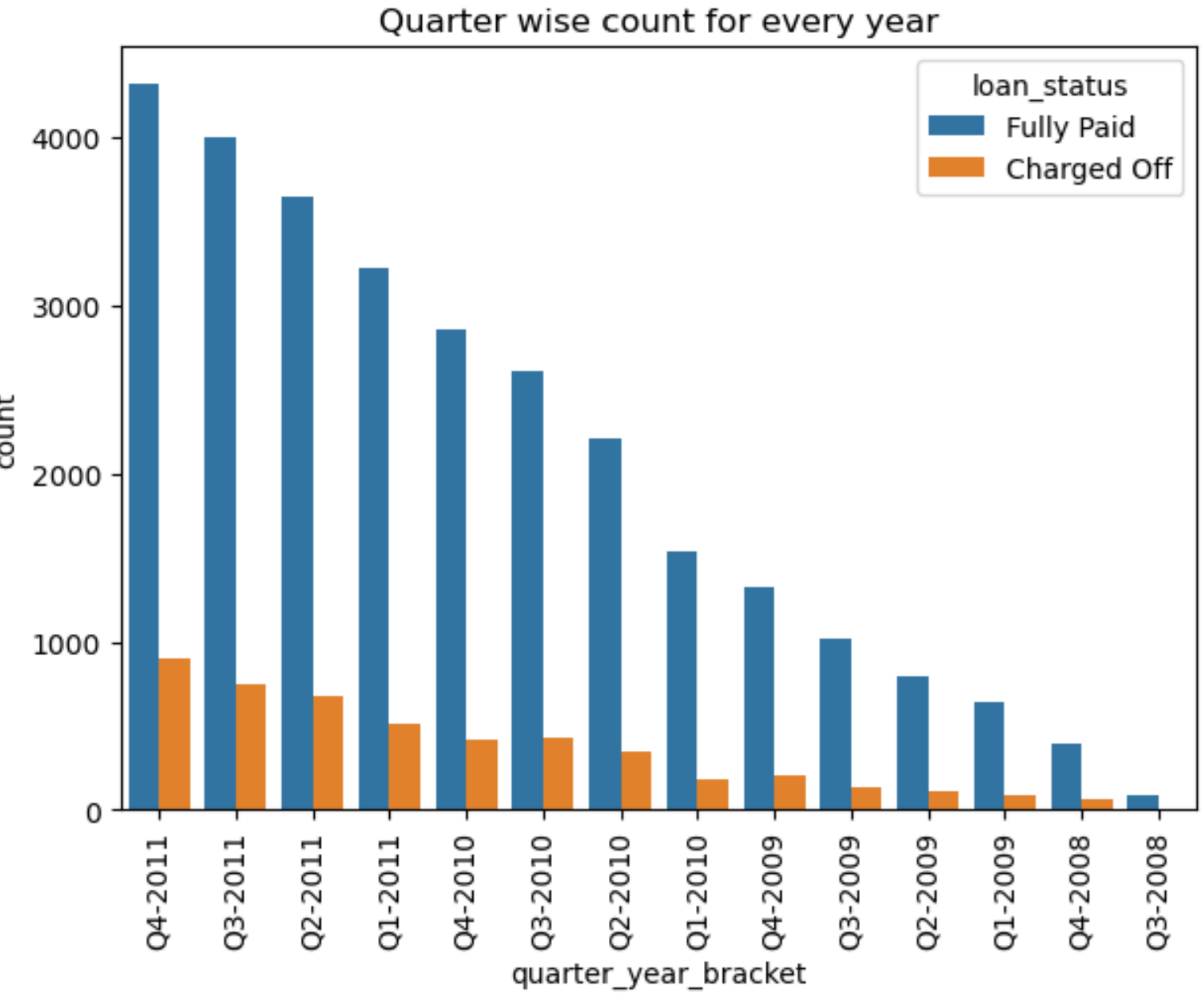

- Fully Paid Borrowers are increasing for every year in each quarter.
- Initial count for Q3-2008 was upto 100, by the time more people are taking up the loans now in the last quarter Q4-2011 count is 5200.
- After 3 years duration population have been increased by 52%.

Income bracket wise count

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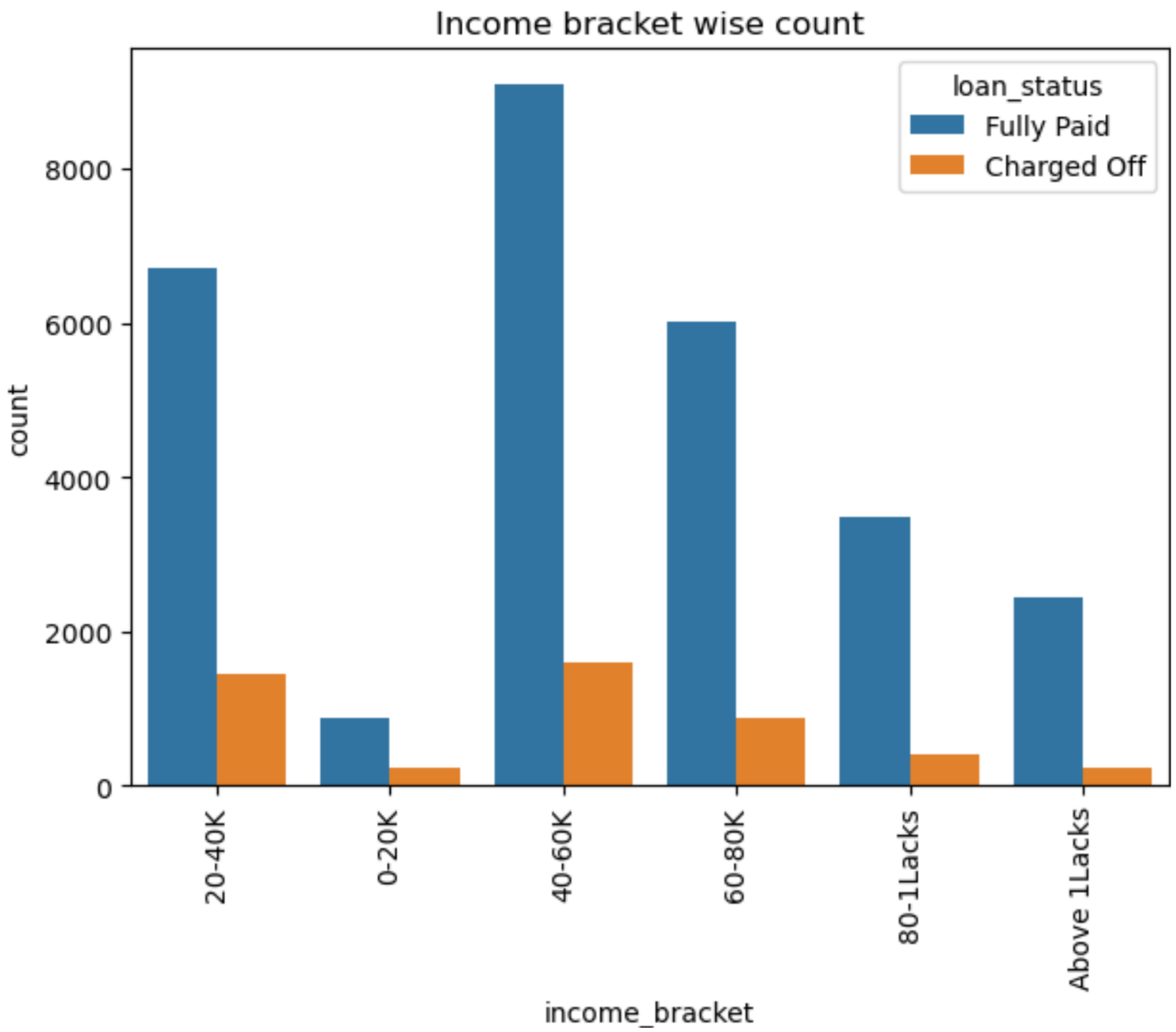

- Most people are taking up the loans from income group range (40k-60K)
- Salaries above 80 lakhs have fully paid their loans, and there seem to be fewer defaulters compared to other income bracket categories in terms of loan status.

Purpose wise defaulters count

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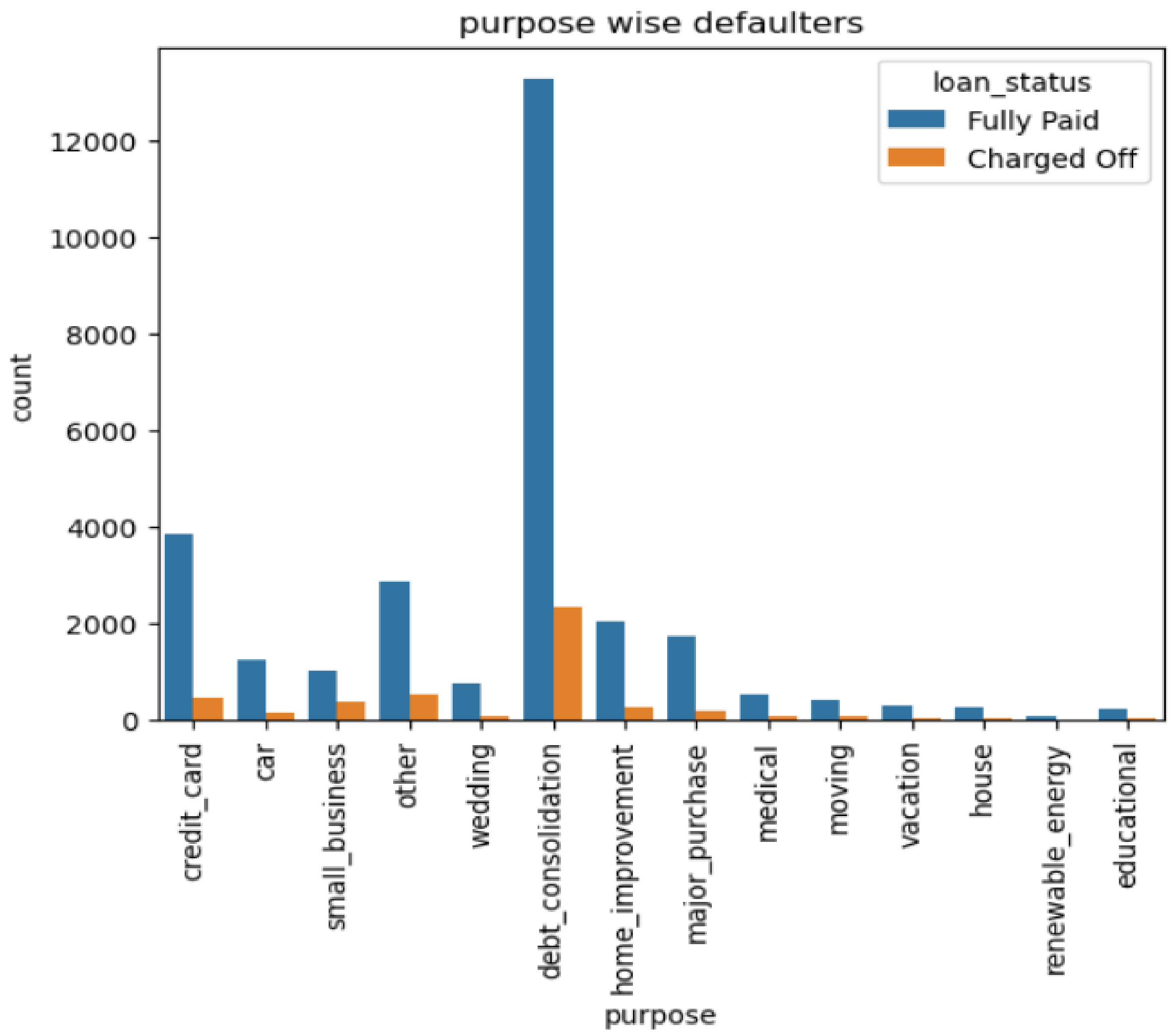

Most of the loan applicants are from debt consolidated followed by credit card and the defaulters are also more from debt consolidated.

Charged Off Proportion vs Income Bracket Proportion

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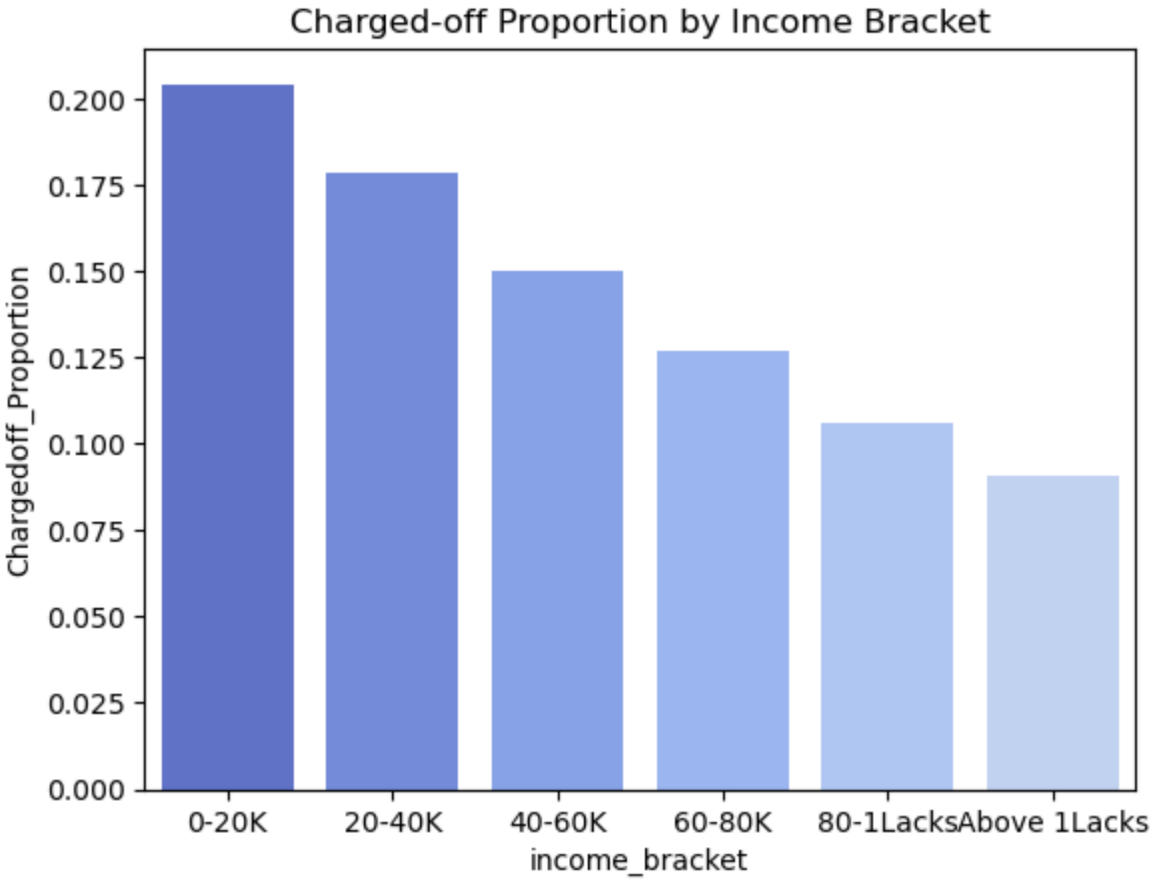

For lower income group bracket (0 to 20000) there is high chance of defaulting the loans.

Increasing the income bracket reduces the default rate.

Charged Off Proportion vs Grade Proportion

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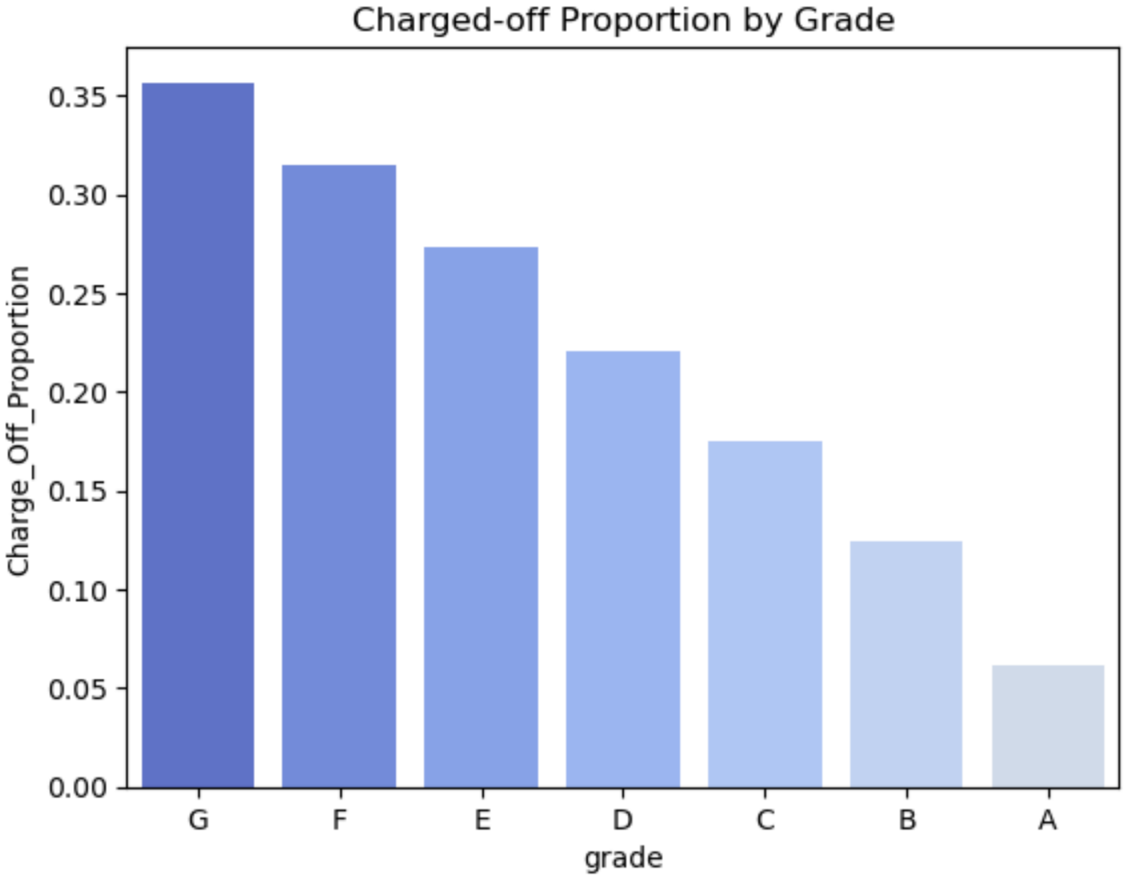

Grade E, F and G having high chance of defaulting the loans.

Higher the Grades tells lower chances of defaulting the loans.

Charged Off Proportion vs Purpose Proportion

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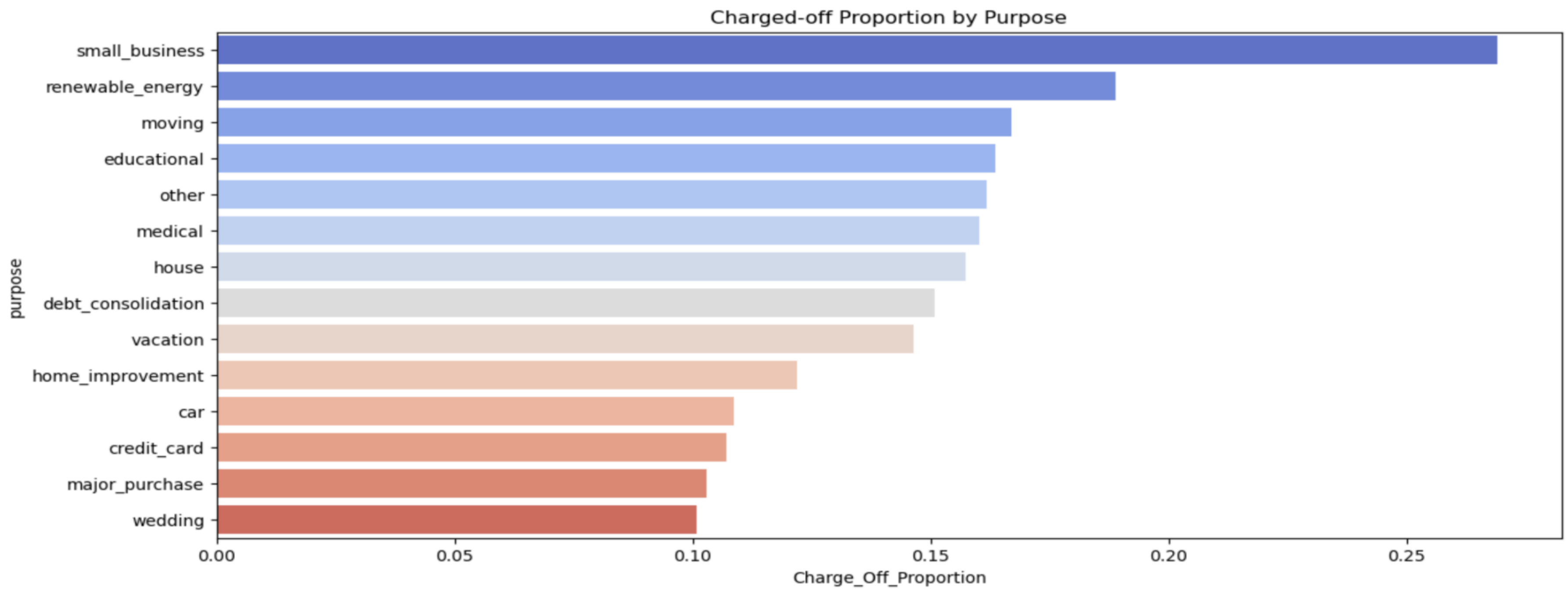

Borrowers are taking loans for small business having more chances of defaulting their loans almost three times than wedding purpose.

Issuing loans small business are very riskier because small business have higher rate of failure due to less assets and paying off the loans back to bank is very difficult for them.

Charged Off Proportion vs DTI Bracket Proportion

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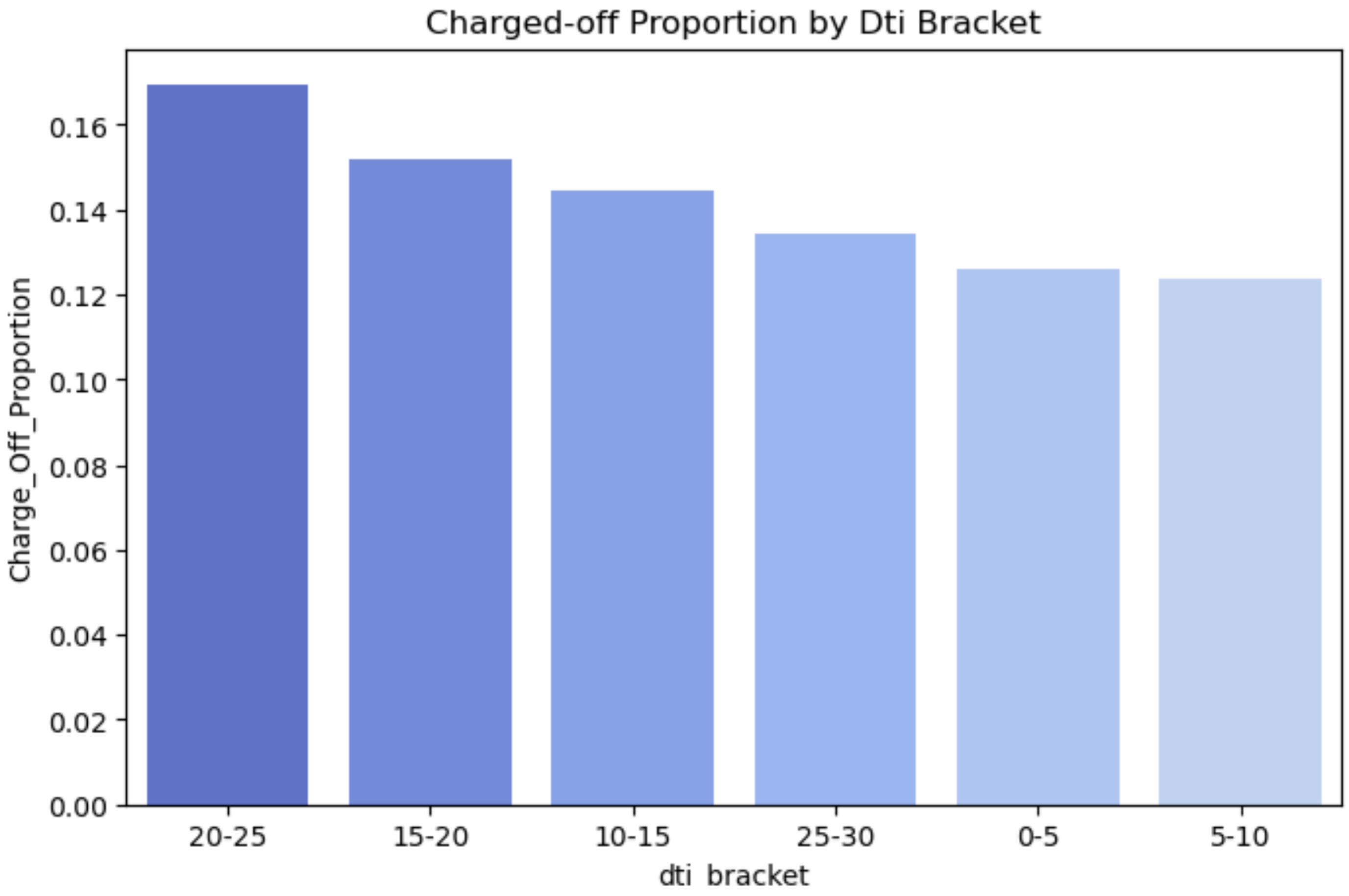

This chart clearly says if debt to income ratio is high there is high chances of defaulting their loans.

Debt To income ratio (20-25) people don't repay their loans to lender because their liabilities are more hence increases the risk of defaults.

Having (0-5) or (5-10) people have less chances of defaulting their loans.

Loan Status vs Interest Rate

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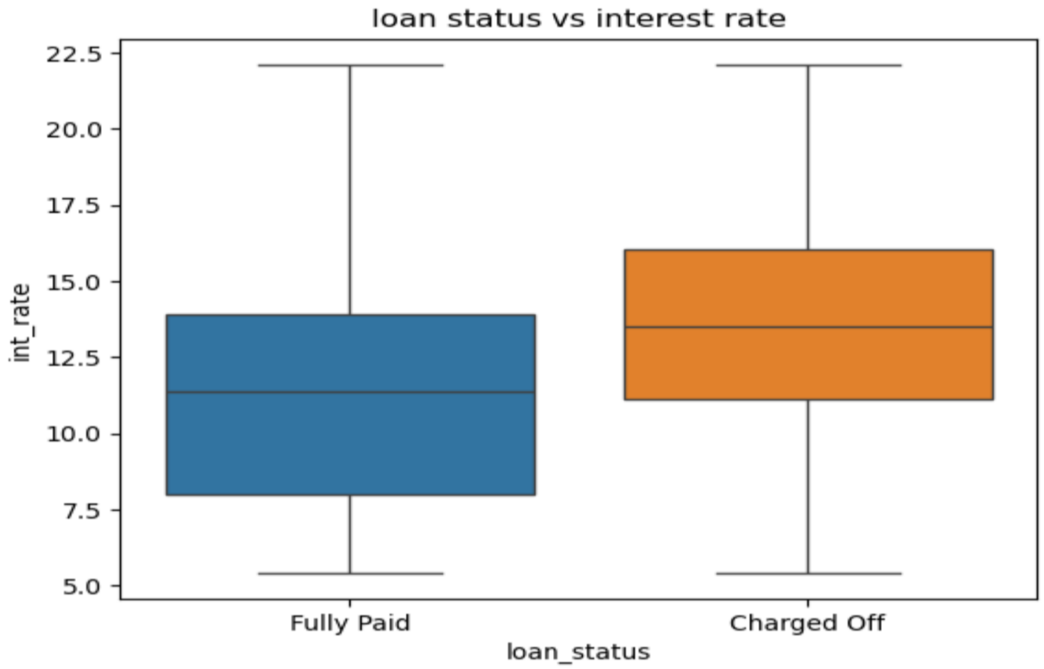

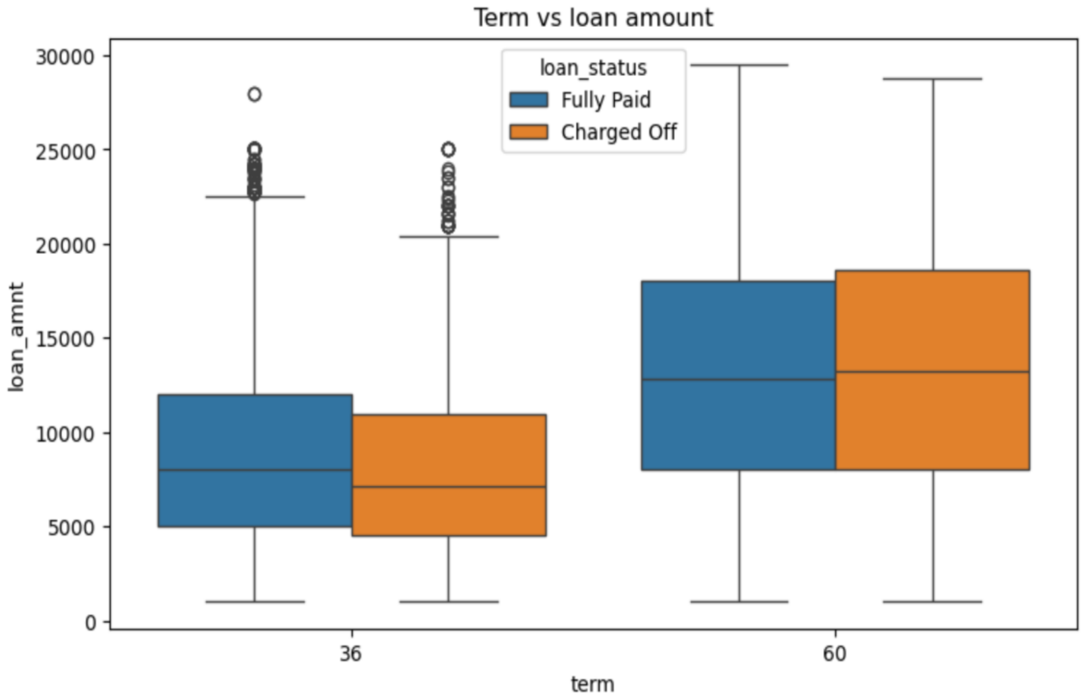

- Borrowers are defaulting their loans due to higher interest rates.
- Higher the interest rates increases the higher Equated Monthly Payment (EMI) and struggles a lot due to more interest amount.
- Charged off loan status are very high for the 5 years loan duration as compared to 3 years duration.

Purpose of Loan vs Interest Rate

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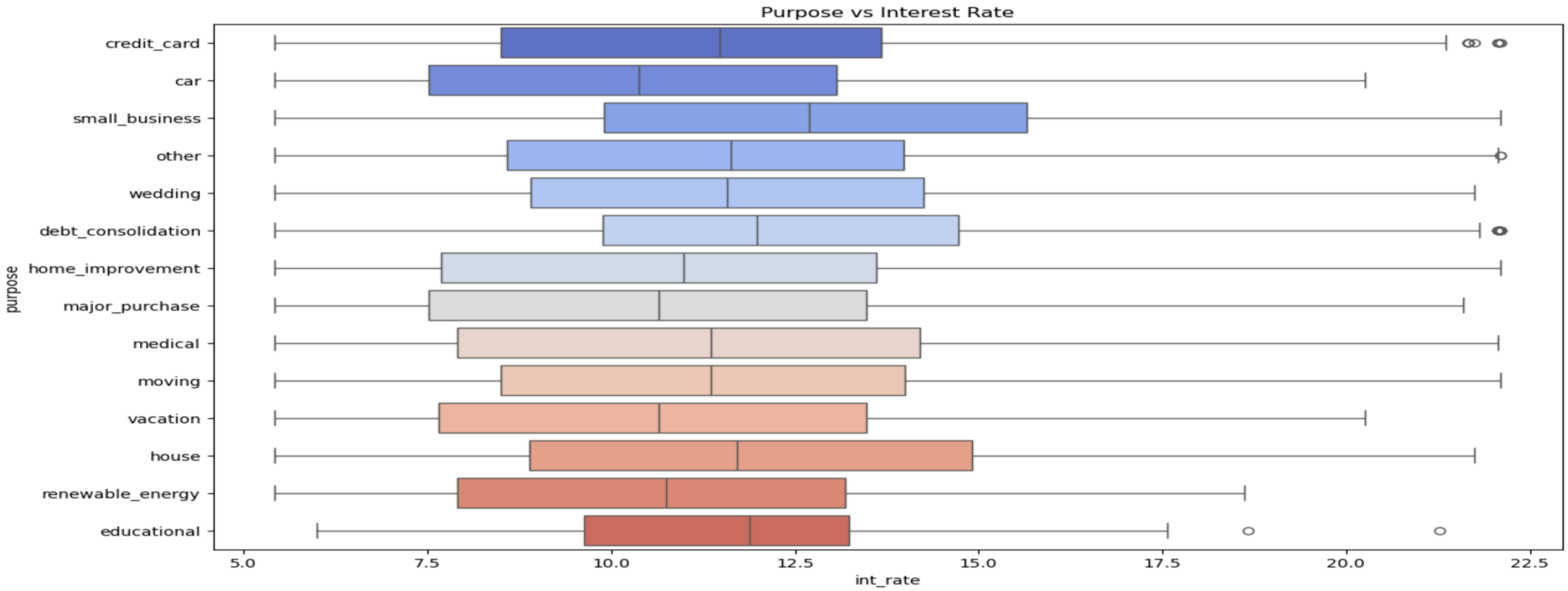

- Borrowers have taken the loans for small business and Debt Consolidation and house are repaying their loans with higher interest rate.
- Loan interest rates are extremely high for borrowers who have taken loans for small business purposes, which may attract higher interest rates for them.

Purpose vs Loan Amount

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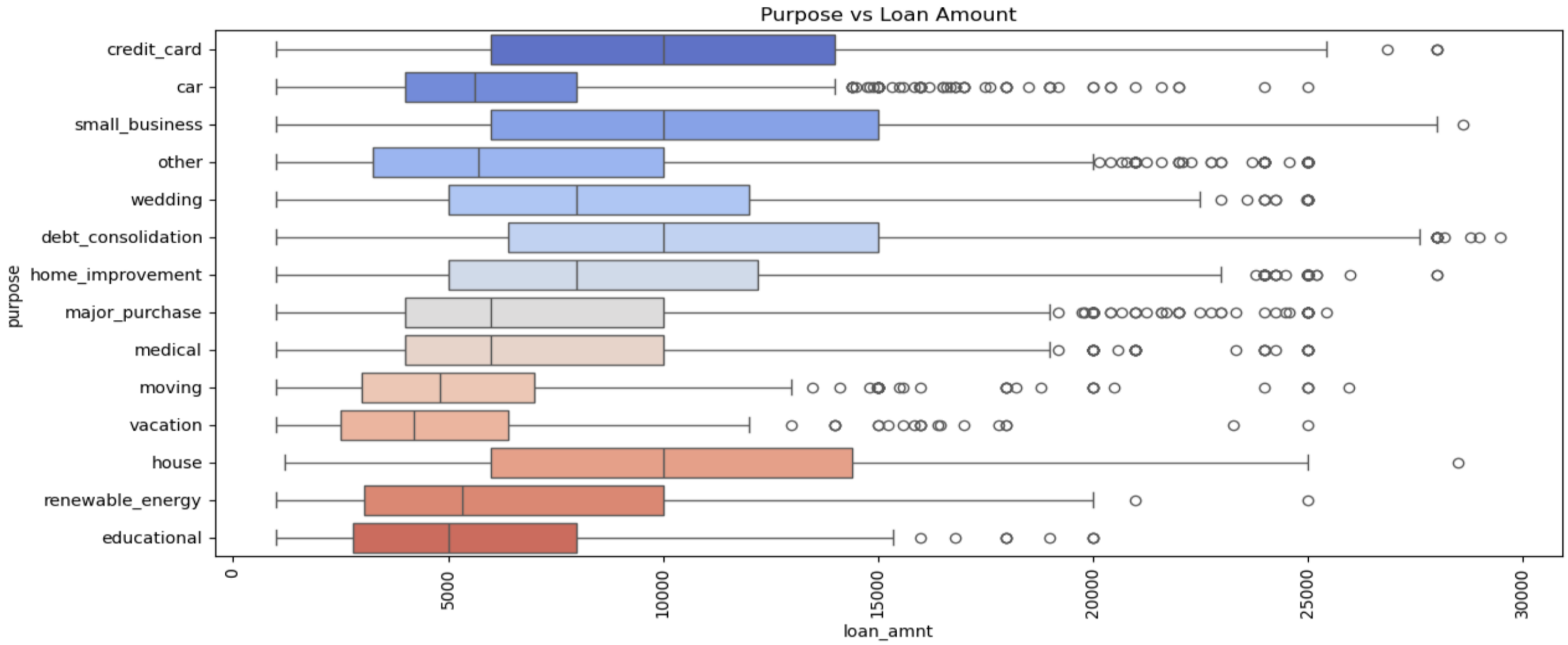

- Borrowers have taken loans for small business and debt consolidation have received the more amount than other purpose categogy.
- Higher the loan amount indicates higher interest rate than small amount.

Recommendations

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- Lending club should give loans to borrowers who falls in higher income group more than **80Lacks** as they have less chances of defaulting loans.
- Lending club should give loans to borrowers having (A ,B) grades as they have more chances of paying off their loans instead of giving loans to lower grades likes (E,F and G) grades.
- Lending club should issue smaller amount for small business and debt consolidation purpose as increasing the loan amount increases the Equated Monthly Installment (EMI) and hard for lenders to repay their loans.
- Borrowers are not able to repay their loans due to higher rates of interest , reducing the interest rate till 12% will reduces the EMI and they will be able to repay their loans on time.
- Borrowers who having home ownership as mortgage have chances of defaulting their loans due to they have monthly mortgage payments.
- Lending club should give loans to MS, DC and DY states as they have less chances of defaulting their loans.
- People with more number of public records bankruptcies are unable to repay their payments.
- Lending club should issue loans to smaller number of Debt To income ratio so that lenders can able to pay the amount and less chances of defaulting their loans.
- Lending club should verify the applicants before issuing loans to them.